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Sacramento Division
Attn: W. P. Hargrave

SACRAMENTO DIVISION

REPORT ON STORM DAMAGE

DECEMBER, 1955

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SACRAMENTO DIVISION REPORT ON STORM DAMAGE, MONTH OF DECEMBER, 1955

Probably the most severe and devastating storm in the history of Northern and Central California, occurred during the middle of December, 1955. This storm, which started about December 16, continued with increasing intensity for ten days and brought unprecedented precipitation with resulting run-offs in all major streams and tributaries over an area extending from the Northern boundary of Oregon to Fresno and the San Joaquin Valley, and from the Coastal Regions into Western Nevada. The swollen rivers and streams weakened levees and breaks occurred, which resulted in the flooding of vast areas in the Sacramento and San Joaquin Valleys, the evacuation of population from cities, towns and farms, with damage to railroads, highways, communication systems, levees, farms and facilities, running into millions of dollars.

It also resulted in loss of life and created chaotic conditions in Marysville, Yuba City and the surrounding territory, rendering large areas of productive farm lands and orchards unfit for use for many years, and created conditions which will effect the economic future of the entire Sacramento Valley.

During the first part of December, or prior to the commencement of the major storm, several other storms of moderate intensity had occurred. The total precipitation at Sacramento from December 1 to December 16 amounted to 1.86" - bringing the total precipitation for the 1955-56 season to 4.54" - which is well above normal. At Blue Canon, in the Sierras, the precipitation from December 1 to 16 amounted to 8.68" - bringing the total for the season at that point to 19.41" - which is also well above normal.

This amount of rainfall had thoroughly saturated all of the areas, and the resulting run-offs had brought up the major tributaries to heights above normal for this time of year, but not to flood stage.

Considerable snow had fallen on the Sierra Nevada Mountains and following is record of snow on the ground at Norden from December 16 to December 28:

Dec. 16	30"	Dec. 24	77"
Dec. 20	69"	Dec. 25	78"
Dec. 21	65"	Dec. 26	86"
Dec. 22	56"	Dec. 27	89"
Dec. 23	42"	Dec. 28	96"

For the ten day period, commencing on December 16 and ending December 26, the total rainfall measured at Sacramento was 9.97" and at Blue Canon during the same period there was a total of 35.42".

Accompanying statement of daily precipitation during December at Sacramento, Colfax, Blue Canon, Truckee and Marysville - and statement of monthly precipitation at Sacramento and Blue Canon, with comparisons to normal and previous maximum precipitation, clearly illustrates the magnitude of this storm.

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DAILY RECORD OF PRECIPITATION
DECEMBER, 1955

Date	Sacramento	Colfax	Blue Canon	Truckee	Marysville
1	0.39"	1.91"	2.14"	0.66"	--
2	--	.07	0.32	0.33	0.29
3	--	--	0.15	--	1.01
4	--	--	--	--	--
5	0.73	0.30	1.75	--	0.11
6	0.16	2.90	2.63	1.25	1.17
7	--	0.22	--	1.08	--
8	0.51	--	1.17	--	--
9	--	0.43	0.32	0.46	0.63
10	--	--	--	--	0.02
11	--	--	--	--	--
12	Trace	--	--	--	--
13	Trace	--	--	--	0.02
14	--	--	--	--	--
15	0.07	--	0.20	--	--
16	.17	0.49	0.97	0.10	0.11
17	0.26	0.73	1.24	0.04	0.14
18	1.40	0.45	2.32	0.10	0.21
19	2.41	2.50	5.81	3.56	2.27
20	0.30	3.02	2.11	2.05	1.83
21	0.51	0.58	5.19	0.27	0.04
22	1.94	5.20	7.44	3.58	1.31
23	1.31	3.14	5.92	3.94	1.01
24	0.06	1.05	0.65	3.97	0.32
25	--	0.37	0.55	0.01	--
26	1.58	2.70	3.02	0.89	1.25
27	0.03	0.13	0.71	1.17	0.02
28	--	--	0.19	0.98	0.01
29	0.01	0.02	0.18	--	--
30	0.32	--	0.25	0.07	--
31	0.04	--	0.39	0.14	0.35
TOTAL	12.20	26.21	45.12	24.65	11.30
NORMAL for month	3.19		10.60	4.40	3.75

PRECIPITATION RECORD BY MONTHS

SEPT. TO DEC. 1955

	SACRAMENTO		BLUE CANON	
	1955	Normal	1955	Normal
Sept.	0.95"	0.08"	0.66"	0.39"
Oct.	0.57	0.92	0.86	3.98
Nov.	1.16	1.59	9.21	6.69
Dec.	12.20	3.19	45.12	10.60
TOTAL	14.88	5.78	55.85	21.66

Precipitation at Blue Canon from 10PM to 11PM, 12-21 - 0.95"

Precipitation at Blue Canon from 11PM to Mid., 12-22 - 0.52"

Previous maximum 1 mo. Blue Canon - 26.75" - Nov. 1950

Previous maximum 1 day Blue Canon - 6.80" - Nov. 18, 1950
with 0.45" between 9PM and 10PM,

and 8.56" November 20, 1950
with 0.86" between 3PM and 4PM.

This unusual amount of rainfall both in the Valley and in the Sierra Nevada Mountains, which fell upon the snowpack, resulted in unprecedented run-offs in the Sacramento, American, Feather and Yuba Rivers, and records indicate the maximum run-offs of various streams reached volumes greater than ever recorded and the height of the rivers rose beyond previously recorded gauge readings at many locations.

Records of run-offs in major rivers with previous maximum run-offs are shown below: ---

Inflow Shasta Reservoir

Dec. 1955 200,000 CFS Previous high 186,000 CFS 2-1940

Feather River

Dec. 1955 218,000 CFS Previous high 230,000 CFS 3-1907

Yuba River

Dec. 1955 165,000 CFS Previous high 120,000 CFS 3-1928

Bear River

Dec. 1955 33,000 CFS Previous high 31,000 CFS 1-1943

Inflow Folsom Reservoir

Dec. 1955 220,000 CFS Previous high 200,000 CFS 11-1950

The water in the Sacramento River at Red Bluff reached an elevation of 23.21" at 2PM on the 22nd, and at Sacramento 23.62" at 5PM on the 23rd. The elevation of the Yuba River at Marysville reached 81.8" at 10PM on the 23rd, and the Feather River reached an elevation of 82.0" at midnight on Dec. 23rd. This compares to previous high waters in these rivers as follows:

Yuba River - Marysville	1937	79.8"	1940	78.0"
Sacramento River - Red Bluff	1940	32.2	1941	24.2
Feather River - Marysville	1940	80'10"		

With the continuing rainfall and with the rapidly rising run-offs in the major tributaries, it was obvious that flooding of low farm lands adjacent to these tributaries, would occur.

Indication of impending disasters and possible breaks in the levees, etc., became apparent from reports received as early as the evening of December 21.

It was evident from these reports that a crisis was developing on the Yuba and Feather Rivers in the vicinity of Marysville, and as the rivers continued to rise, it was found advisable by the authorities to evacuate all people living in that area south of Marysville - known as Olivehurst. All of these people were evacuated to Marysville, Yuba City, Camp Beale and Grass Valley. By Thursday afternoon, Dec. 22, the flow of the Feather River at Marysville had reached the danger point of 173,000 cubic feet per second. At some points along the Feather and Yuba Rivers the levees had started to erode to such an extend that levee workers started sand-bagging the weak spots and patrolling against possible breaks. These workers toiled all night Thursday, Dec. 22nd and Friday, December 23rd, and as the rivers continued to rise, the City authorities at Marysville - fearful of breaks and overflow of levees, ordered the evacuation of all population in the City of Marysville. By Friday noon the Feather and Yuba Rivers had reached new heights, there being more than 200,000 CFS of water in the Feather, flowing past the cities of Marysville and Yuba City.

Practically the entire population of Marysville was evacuated by noon on Friday, Dec. 23, the majority of these people going to Yuba City, Camp Beale and to other points which would not be affected in case of levee breaks. However, through the heroic efforts of

many citizens and National Guardsmen in sand-bagging levees, the City of Marysville was not flooded.

During this period the levees on the west side of the Feather River, which protected the town of Yuba City, appeared to be holding; and while there were some leaks and erosion of the levees, which were quickly repaired by sand-bagging and by bulldozers, it did not appear the town was in immediate danger of being flooded. Small leaks appeared in the levee system where the old Fifth Street Bridge entered the City. This was controlled by sand-bagging, but during the evening of December 24, leaks and erosion of the levee near Shanghai Bend, located south of Yuba City, began to occur to such extent that authorities considered a critical situation had arisen and ordered evacuation of the populace. A short time after such order was given the levee at Shanghai broke and the water of the Feather River rushed through the break with tremendous volume and force, flooding the entire city and surrounding area to depths as much as 14 feet.

The accompanying newspaper photographs illustrate the havoc wrought by the flooding of the City and depict the extent of the inundated areas.

When reports were first received of the critical situation, both in the Valley and on the Sierra Nevada, it was obvious that our railroad would suffer damage from washouts and slides, particularly in the Truckee River Canyon from Truckee to Reno. The rapid rise of the Truckee River gave indication the force of water would undermine track embankments and cause damage to bridges and culverts. But while the flow in the river exceeded 16,000 CFS, and overflowed into the town of Reno, no serious slides or washouts occurred.

On the attached statements we have enumerated the damage occurring at various points on the Ogden line from Roseville to Reno; on the Valley line from Roseville to Gerber; Davis to Tehama, Dantoni Branch; Oroville Branch and the Yuba City line.

The most serious damage to our transcontinental main line over the Sierras, resulting in tieup of traffic for a period of four days, occurred at a point just west of Blue Canon at MP-163.7. At approximately 10AM, Dec. 23, the track embankment at this point slipped out for a distance of approximately 250 ft. creating a hole that was about 30 ft. deep under the westward track, and about 50 ft. deep under the eastward track - leaving tracks suspended in midair. This slip-out was undoubtedly caused by storm waters seeping through the saturated ground, as during the previous day and throughout the night of Dec. 22nd, a total of over 7.5" of rain had fallen and large streams of water were running down the side slopes in such a volume the existing culverts could not handle the run-off.

Men, equipment, supplies, etc., were rushed to the site to make immediate restoration, however, it developed that it would be impossible, because of the length and depth of the hole that was created, to drive protective piling and fill the depression. It was decided that in order to open up the track on a temporary basis, it would be necessary to drive a 225 ft. single track trestle. Work on this structure was started on the afternoon of Saturday, Dec. 24, and carried on continuously night and day until the trestle was completed and opened for traffic about 1PM, Tuesday, Dec. 27. This work was carried on during heavy continuing rainfall which made operations extremely difficult because of mud, lack of communications (all communication lines had been washed away) and because of the difficulty

in getting supplies to this remote point - which was situated a considerable distance from the highway. The final correction of the condition will necessitate the realignment of the main tracks, moving into the hillside approximately 85' in order to secure stable ground on which to reconstruct the trackage.

The flooding of the entire town of Yuba City, and the areas south thereof, damaged the Yuba City Branch from Berg to Wilson to a great extent. Details and location of damage to track on this branch are enumerated on the attached statement, and photographs attached show in detail the damage incurred.

The track was washed off grade at many locations, the embankment was scoured at various points to depths of from 1 to 5', and the entire right of way was littered with debris of all nature, including houses that had been washed off of foundations, livestock, etc.

As soon as water had receded, repairs were started and service to Yuba City was resumed about January 4.

Considerable damage occurred on the track embankment and levee between Binney Junction and the Feather River. The water rose to the height of the embankment on both sides of the track and the strong southwest wind, which occurred December 23 and 24, created a wave action washing out all ballast and eroding considerable portions of the embankment. The East Valley line north of Marysville was out of service from 5:15PM, Dec. 22 - when the flood gates in the levee at Binney Junction, and at the east end of the Feather River were closed - until 8:00PM, Dec. 24, when they were re-opened.

While magnitude of the storm and the resulting damage was extensive, it might have reached catastrophic proportions had it not been for the functioning of the Shasta and Folsom Dams. The run-offs from these reservoirs were so controlled to keep the run-offs in the Sacramento and American rivers below flood stage, and no appreciable damage occurred to levees along these rivers.

ROSEVILLE - LAWTON

LOCATION OF SLIDES, TRACK DAMAGE ETC. - OCCURRING ACCOUNT
STORM DEC. 22, 28, - 1955

ELVAS	Considerable accumulation of drift at American River Bridge. Cleared by B&B men, Dec. 23rd.
AUBURN, West of	Small mud slide at Curve 50, west of Bloomer Cut.
AUBURN	Small washes at MP-122.3 and MP-123 westward track. Repaired by section men with crushed rock and cobbles. No train delay.
LANDER	Slide above westward track at MP-139 west end old Lander station. About 90' long. Did not endanger track.
LANDER	Granite block wingwall west end Tunnel 30 pushed out of line approximately 8". Earth hill back of wall very soft. B&B men cribbed and jacked in place. No train delay.
NEW ENGLAND MILLS	Culvert on curve 102 westward track plugged. No damage to fill.
GOLD RUN	Small slide and soft track MP-151.5. Cleared by ditcher and section men.
	Slight sluffing of hillside west end Prospect Cut.
MIDAS, West of	Small slide on westward track just west of Signal 1596 50' long. Came from top of 80' cut. Cleared by ditchers.
MIDAS	Small slide just east of east switch. Cleared by ditcher.
FOREBAY	At approximately 10 AM, Dec. 23, slide and washout occurred at east end Curve 228. Took out both east and westward main tracks for distance of approx. 250' in length and about 30' to 60' in depth. As impossible to crib and fill, a 120' single track trestle was installed westward track alignment. Work commenced Saturday PM, Dec. 24, open for traffic 1 PM, Dec. 27. Both tracks tied up approx. 75 hours. Required single track operation from Midas to Emigrant Gap when first opened and later from Midas to Knapp. To make permanent restoration, necessary to revise alignment to move into hillside approx. 85' from centerline westward track. This will involve excavation of approx. 75,000 cubic yards material, extensive drain lines, culverts, etc. Estimated cost $

KNAPP	Slide at west end of Curve MP-163.8 West of Tunnel 1. Covered both main lines with 1 to 1½' of mud. Removed by ditcher.
KNAPP	Small slide soft fill at east end Tunnel 1.
BLUE CANON	Portion of fill along eastward track at old turntable pit. Approx. 40' long and about 20' deep. Edge of washout 4' from end of ties. Restored with 18 cars of cinders. No track damage.
EMIGRANT GAP	Several small slides on balloon track. No track damage.
EMIGRANT GAP	Slide at west switch and west water tank, covered both main lines and siding for depth of 4' and 90' long. Knocked down Western Union pole line. Cleaned up by ditchers. Necessary to single track for few hours.
SMART	Small mud slides in vicinity of MP-173. Cleared by ditcher.
YUBA PASS	Large quantities of water running off hillside, flowed along eastward track. No damage.
TROY	Snow and debris plugged culvert ES-5144+ west of Tunnels. Caused water to run along track. Opened by ditcher. No damage.
CISCO	Water running along tracks. Covered with mud and debris in several spots. No track damage.
ANDOVER	Rock and mud slide just west of Tunnel 13, approx. 50' long 1½' in depth. Also washed hole in embankment along eastward track.
ANDOVER	West end Horseshoe Curve, culvert blocked with rocks and debris. Washed out ballast at ends of ties for about 60'. Ballast replaced and sand bags placed along embankment to stop water from getting onto track.
FLORISTON	Considerable mud and rocks washed from hillside at MP-219.5. Culvert blocked. No track damage. Cleaned by ditchers.
ICELAND	Greys Creek cut new channel east of first Truckee River bridge, endangering westward tracks. Corrected by bulldozer.
POLARIS	Small slide over eastward track MP-220.5. Culvert blocked. Cleared by ditcher.

FLORISTON	Mud and rock washed over eastward track at MP-220. Cleared by ditcher.
MYSTIC	Small slide and wash MP-229. Slide over both tracks. Approx. 50' long, 2' deep. Cleared by ditchers.
MYSTIC	Slide over both tracks just west second Truckee River crossing.

YUBA CITY BRANCH

LOCATION OF TRACKAGE DAMAGE, ETC. - OCCURRING ACCOUNT
STORM DEC. 22, 28 - 1955

Mile Post		
146.21	146.26	Ballast section washed away, no damage to sub-grade, debris on track. (2 cars ballast required)
146.38	146.47	Track OK except for some debris on track (hand work)
146.47	146.57	Ballast section completely washed away and track washed 2 feet to the left for about 200', remaining portion approximately 40% of ballast washed away. (4 cars ballast required, some ties to be replaced).
146.57	146.87	Track OK except for small amounts of ballast washed away, some debris on track (hand work).
146.87	147.0	Some ballast washed away, large amount of debris on track (mostly lumber), entire ballast section and roadbed covered with from 1" to 2" of mud. (handwork).
147.0	147.17	Between crossing 147.0 and 147.2 track OK, some debris on track (hand work).
147.17	147.23	Ballast section washed away, track shifted to the right max. of 4', debris on track. (4 cars ballast required).
147.46	147.48	Track embankment approximately 10' high washed out for 30' west and 15' east of structure #147.46 (No apparent damage to Str. #147.46). Rail and cross ties are in place over washout areas, embankment settled approx. 6" on right side of track for an additional 30' east of structure (approx. 650 C.Y. of fill material required and 1 car of ballast).
147.48	148.30	Track OK except for debris and small amounts of ballast washed away, some realigning and surfacing may be required (handwork).
148.3		30'x50' frame structure (bicycle repair shop) on track just west of crossing 148.3.
148.30	148.46	About 40% of ballast washed away, debris on track (4 cars of ballast required.)
148.44		Large frame house on track.

Mile Post		
148.46	148.50	Ballast section washed away for 50' west of Str. #148.47 (damage to Str. #148.47 appeared slight, some scour was noted around 2 framed bents. Several frame buildings and other debris washed against structure. Track embankment at east end of Str. washed out 10' wide, 4' deep between conc. abutment and old pile bulkhead. (approx. 40 C.Y. fill material required.)
148.50	148.69	Track washed to the right approximately 20' to 30' against row of fruit trees ballast section completely washed away, considerable debris entangled around track. Portion of track embankment for approx. 100' on left side washed. (Approx. 150 C.Y. fill material required). 12 cars ballast required and roadbed should be regraded before restoring track.
148.69	148.78	Approx. 50% of ballast washed away, track held position, will require lining and surfacing. (3 cars ballast required).
148.78	149.8	Track in same condition as at MP-148.50 to 148.69 above. (55 to 60 cars ballast required).
149.8	149.95	Track washed to right approx. 30', ballast section completely gone, considerable debris on track.
149.95	150.3	Track in place, silt and other debris on track, 30% of ballast washed away, line and surface required.
150.3	150.5	Track in fair condition, some debris on track, some ballast washed away.
150.5	150.8	Track moved to right approx. 40' covered with silt for approx. 300', ballast completely washed away.
150.8	151.1	30% of ballast washed away, debris on track, some lining and surfacing required.
151.1	151.65	Track moved to right approx. 30', ballast washed away, debris on track.
151.65	151.80	40% of ballast gone, heavy amounts of debris on track, ballast completely washed away in numerous small areas which will require considerable hand work before ballast train can operate.
151.80	152.4	Debris on Track, 30% of ballast gone, some lining and surfacing required.

Mile Post		
152.4	152.8	Track on line, approx. 60% of ballast washed away, bad ballast washes at numerous locations will require considerable hand work before ballast train can operate. Debris on track.
152.8	153.15	Track washed 20' to right, 75% of ballast gone, debris on track.
153.15	153.55	Track fair, some debris on track, will require minor lining and surfacing.
153.55	154.55	30% of ballast washed away, debris on track, handwork will be required before ballast train can operate.
154.55	154.75	Track moved approx. 25' to right. 50% of ballast washed away, should be graded before track is replaced.
154.75	155.70	Track on line, ballast washed out in spots, some debris on track.

157.0 to End of Branch - Track on roadbed but will require some ballast and minor lining and surfacing.

WILSON — Embankment around bulkheads three trestles between Wilson and Tudor washed out and some repairs required to structures.

TUDOR — Section buildings badly damaged by water. Bath house off foundation and turned over. Large bunk house, cook house moved off foundations but can be restored. Section Foreman's house damaged. Tool house and pump house badly damaged and off foundation and probably will have to be rebuilt. Entire station area covered with lumber, old houses and debris. Water 5½' above floor of living quarters.

OROVILLE BRANCH

FLOOD DAMAGE MONTH OF DECEMBER, 1955

BINNEY JCT.	Several ballast washes in vicinity of MP-122 to 124.
WEST OF MELLO	Stock corrals washed out. Necessary to rebuild entirely.

ROSEVILLE - GERBER

FLOOD DAMAGE - DECEMBER, 1955

WHEATLAND	Considerable accumulation of drift lodged against Structure #129.52, Dry Creek. Water over top of ties and 3' over highway.
OSTROM	West approach Yuba River Structure #139.79. Drift lodged around bracing under bridge. Considerable drift around piers of steel span.
BINNEY JCT.	Str. #142.13 Simmerly Slough. Large quantities of drift wedged in bracing and girts. Water rose to floor boards.
BINNEY JCT.	Track embankment between Simmerly Slough and Feather River bridge eroded. Water reached top of embankment and southwest wind created wave action which washed out ballast and eroded fill. Communication lines along fill washed away.
BINNEY JCT.	Str. #143.11 West approach and East approach Feather River Bridge. Large amounts of drift lodged against piling. B&B gangs worked continuously for 4 days during storm to remove. Water rose above top of rail at east end of trestle.
BINNEY JCT.	Str. #143.74 - Drift and large trees lodged against bridge. Necessary to remove with bulldozers after water receded.
NELSON	Str. #173.09. Drift lodged against bridge.
CHICO	Str. #186.45 - Sandy Gulch. Bank on left side west abutment slightly scoured. Sandbags placed to prevent cutting behind abutment.
VINA	Str. #203.67. - Deer Creek - New channel cut into west bank about 50' upstream from trestle. Protection work necessary to prevent further cutting back of bulkhead.
GERBER	Str. #213.52 - Elder Creek - Water up to deck. Some debris lodged against trestle.
	Numerous soft spots from Berg to Chico, particularly in vicinity of Sullivan.

DAVIS - TEHAMA

FLOOD DAMAGE - STORM, DECEMBER, 1955

Harrington	Slight scouring under west abutment Structure #105.90, Buckeye Creek.
Harrington	Scour under bottom plank of west bulkhead Structure #109.50.
Arbuckle	Slight scouring around east bulkhead Structure #111.08.
Arbuckle	Heavy drift against Structure #116.18. Water reached top of deck plank.
Arbuckle	Panels 6 and 7 on Structure #118.88 clogged with dirt and debris.
Williams	Accumulation of drift between panel Structure #125.88.
Maxwell	Slight scour Structure #135.05.
Delevan	Considerable drift against Structure #137.10.
Kirkwood	Scouring under mat of piers 5 and 6, Structure #174.84. On east end channel cutting in towards road.

DANTONI BRANCH

WASHOUTS AND DAMAGE TO TRACK, DECEMBER, 1955

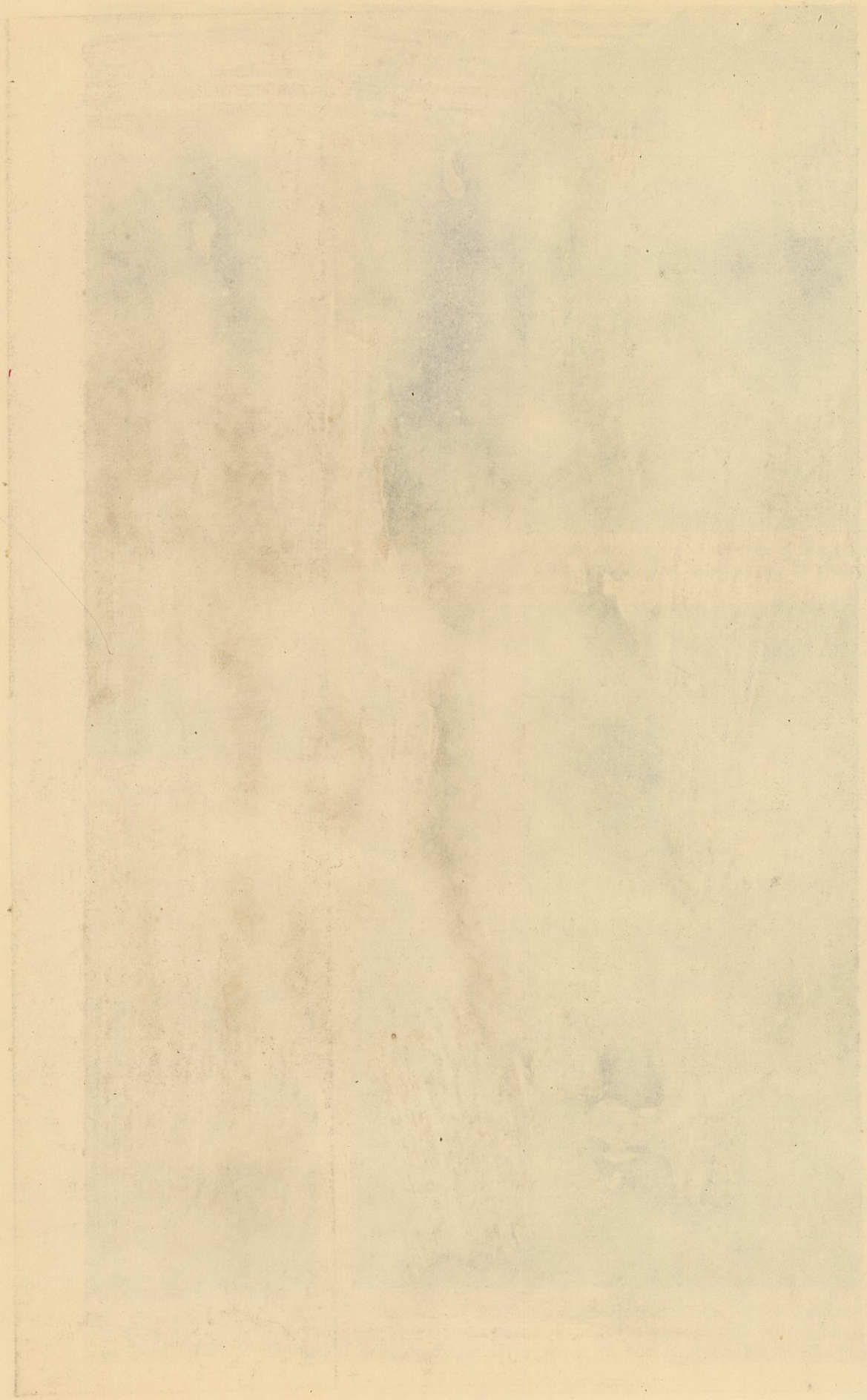
DANTONI JCT.	Large hole scoured in levee MP-142.3. Hole 3' deep in center of track. Necessary remove 300' of track to permit U. S. Engineers to repair levee.
LINDA	Washout 2' deep, 30' long at spur switch.
LINDA	Washout 200' east of Linda spur. 2' deep, 40' long.
	Four washouts along first curve east of Linda:

1st	4' deep	50' long
2nd	1' deep	15' long
3rd	5' deep	35' long
4th	2' deep	60' long

Earl Parker track beyond Dantoni washed out in various locations, with considerable ballast washed away.



AN ISLAND CITY Marysville was a picturesque island on Friday when the city was evacuated in the face of the rising torrent of the Feather River, foreground, and Yuba River, background. The stream of cars taking the entire population to Yuba City across the 10th Street Bridge is seen in the center foreground. Miraculously, however, Marysville was not flooded; Yuba City was. The successful crusade to save Marysville started a week ago yesterday when several thousand men, including volunteers from Camp Beale, started a round the clock levee strengthening battle. Patrols and sandbag crews continued working constantly through Friday and Friday night, after all residents had been evacuated. When a Feather River levee broke south of Yuba City, the pressure against the Marysville levees was relieved. Ironically, the residents of Marysville who had fled to Yuba City now were compelled to flee again, many coming to Sacramento.



1956 JUN 6 AM 6 47

June 5, 1956 CG: 370.2

Dr. William W. Stiles
School of Public Health
University of California
Berkeley 4, California

Dear Dr. Stiles:

Attached is your memorandum on the Yuba City Flood which you submitted for our review May 23. It is certainly an interesting and comprehensive account.

Supplementing the material we sent you earlier, following is some additional information relative to the problems which confronted Southern Pacific in that area:

The flooding of Yuba City and surrounding area damaged several branch lines and the SP main line which runs through Marysville and connects Roseville to Gerber. Track was washed off grade at many locations, embankments were scoured at various points to depths as great as five feet, and the entire right of way was littered with wreckage of all nature, including a house which had been washed off its foundations. Principal damage was on the branch line through Yuba City and south to Wilson.

1956 JUN 6 AM 6 47

June 5, 1956

CC: 870.2

Dr. William K. Stiles
School of Public Health
University of California
Berkeley 4, California

Dear Dr. Stiles:

Attached is your memorandum on the Yuba City flood water contribution for our review May 28. It is certainly an interesting and comprehensive account.

Supplementing the material we sent you earlier, following is some additional information relative to the problems which confronted Southern Pacific in that area:

The flooding of Yuba City and surrounding area damaged several branch lines and the SP main line which runs through Marysville and connects Roseville to Oroville. Track was washed off grade at many locations, embankments were scoured at various points to depths as great as five feet, and the entire right of way was littered with wreckage of all nature, including a house which had been washed off its foundations. Principal damage was on the branch line through Yuba City and north to Wilson.

Considerable damage also occurred on the track embankment and levee between Binney Junction and the Feather River. The water rose to the top of the embankment on both sides of the track and the strong southwest wind on December 23 and 24 created a wave action washing out all ballast and eroding considerable portions of the embankment. The line north of Marysville went out of service at 5:15 P.M. December 22, when the floodgates in the levee at Binney Junction and at the east end of the Feather River were closed. The gates remained closed until 8 P.M. December 24.

Southern Pacific crews worked round the clock to combat flood damage. This work included sandbagging and protecting the rail-topped levee between Binney Junction and Berg. The levee while flanked by waters breaking in from the rear, served to ward off heavy pressure of flood currents from the main Feather River channel.

At Dantoni, east of Marysville, SP forces tore up 300 feet of track to permit U.S. Army Engineers to repair the levee at that point.

Altogether, flood losses to SP in the Marysville-Yuba City area amounted to approximately $200,000.

As mentioned previously, more serious damage to SP line occurred at Forebay in the Sierras, resulting in tieup of traffic over that transcontinental line for four days.

If you have additional questions, please let us know.

Sincerely yours,

Original Signed
J. C. SHEA

Encls.

bc: ✓ Mr. R.A. Miller -- Reference conversation Mr. Ortiz of this department with Messrs. S.B. Burton and W.P. Hargrave. Copy of Report on Storm Damage loaned by your office is attached.

Considerable damage also occurred on the track embankment and levee between Binney Junction and the Feather River. The water rose to the top of the embankment on both sides of the trestle and the strong southwest wind on December 23 and 24 created a wave action washing out all ballast and eroding considerable portions of the embankment. The line north of Marysville went out of service at 8:15 P.M. December 23, when the floodwaters in the levees at Binney Junction and at the east end of the Feather River were closed. The gates remained closed until 8 P.M. December 31.

Southern Pacific crews worked round the clock to combat flood damage. This work included sandbagging and protecting the rail-topped levee between Binney Junction and Berg. The levee while flanked by waters breaking in from the rear, served to ward off heavy pressure of flood currents from the main Feather River channel.

At Durham, east of Marysville, 52 fissures tore up 800 feet of track to permit U.S. Army Engineers to empty the levee at that point. Altogether, flood losses to SP in the Marysville-Yuba City area amounted to approximately $800,000.

As mentioned previously, more serious damage to SP line occurred at Formby in the Sierras, resulting in delay of traffic over that transcontinental line for four days.

If you have additional questions, please let us know.

Sincerely yours,

Encls.

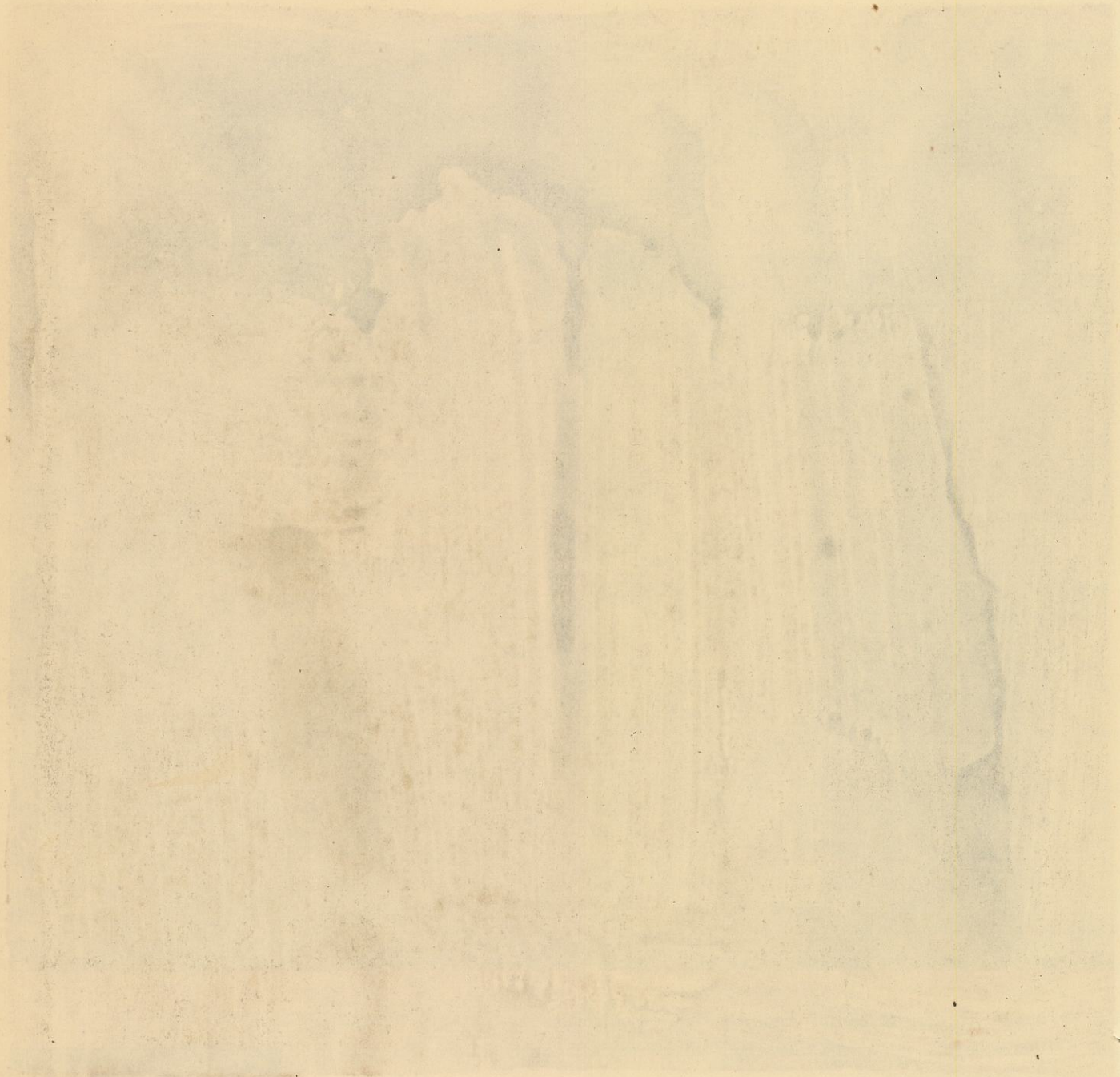
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DISASTER STRIKES Yuba City, Sutter County, foreground, was flooded early Saturday morning, December 24th, when the rampaging Feather River broke through the levee south of the city. Marysville, Yuba County, in the background across the river, was an island in a sea of high water. Its residents fled across the bridge, center, and then had to escape from Yuba City.

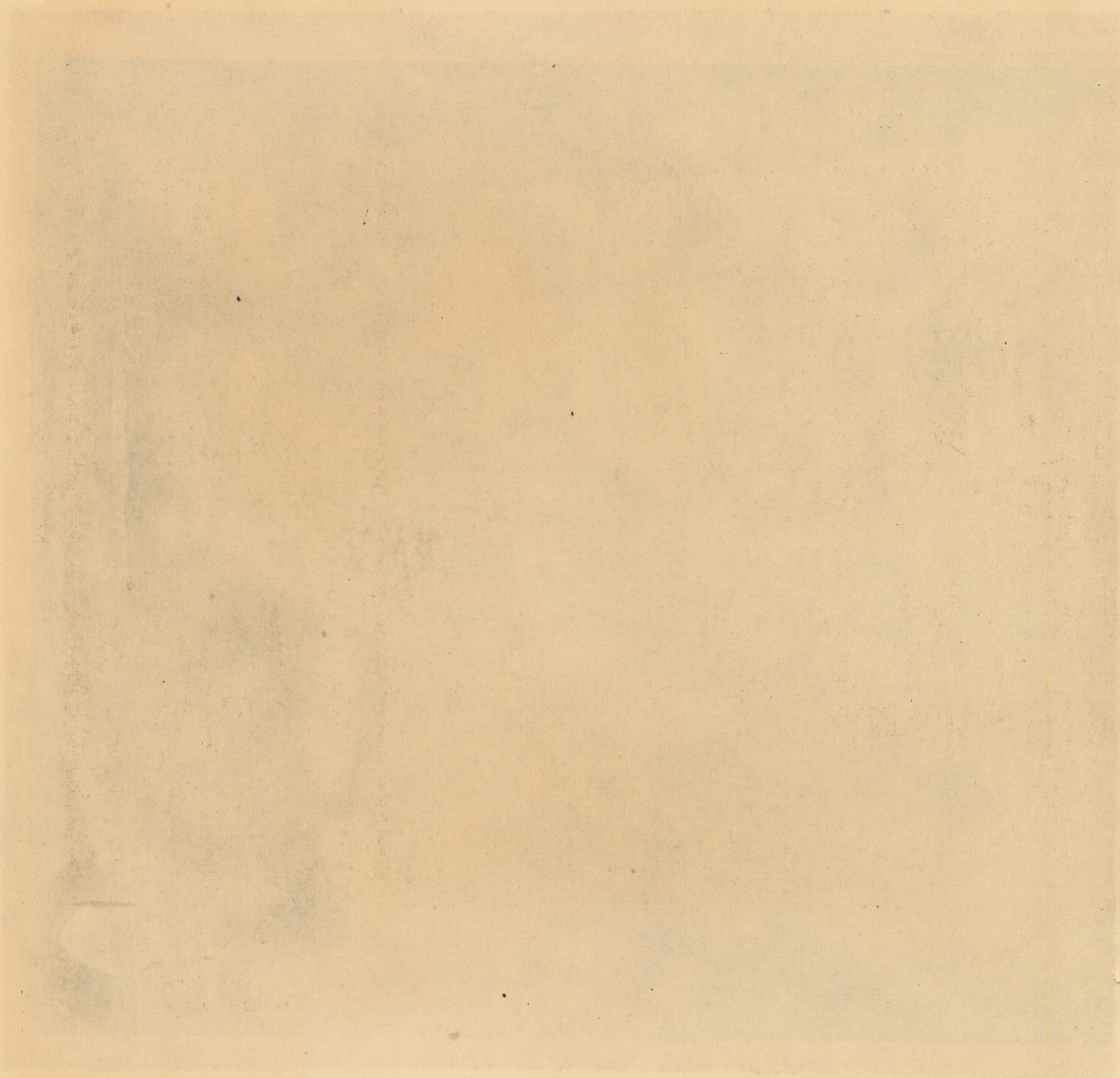


FORLORN CITY—Decorations span Plumas Street, the main business throughfare of Yuba City, Sutter County, left, after the Feather River burst its levee and sent water roaring into the city 8 feet deep. The levee gave way a mile south of the city.



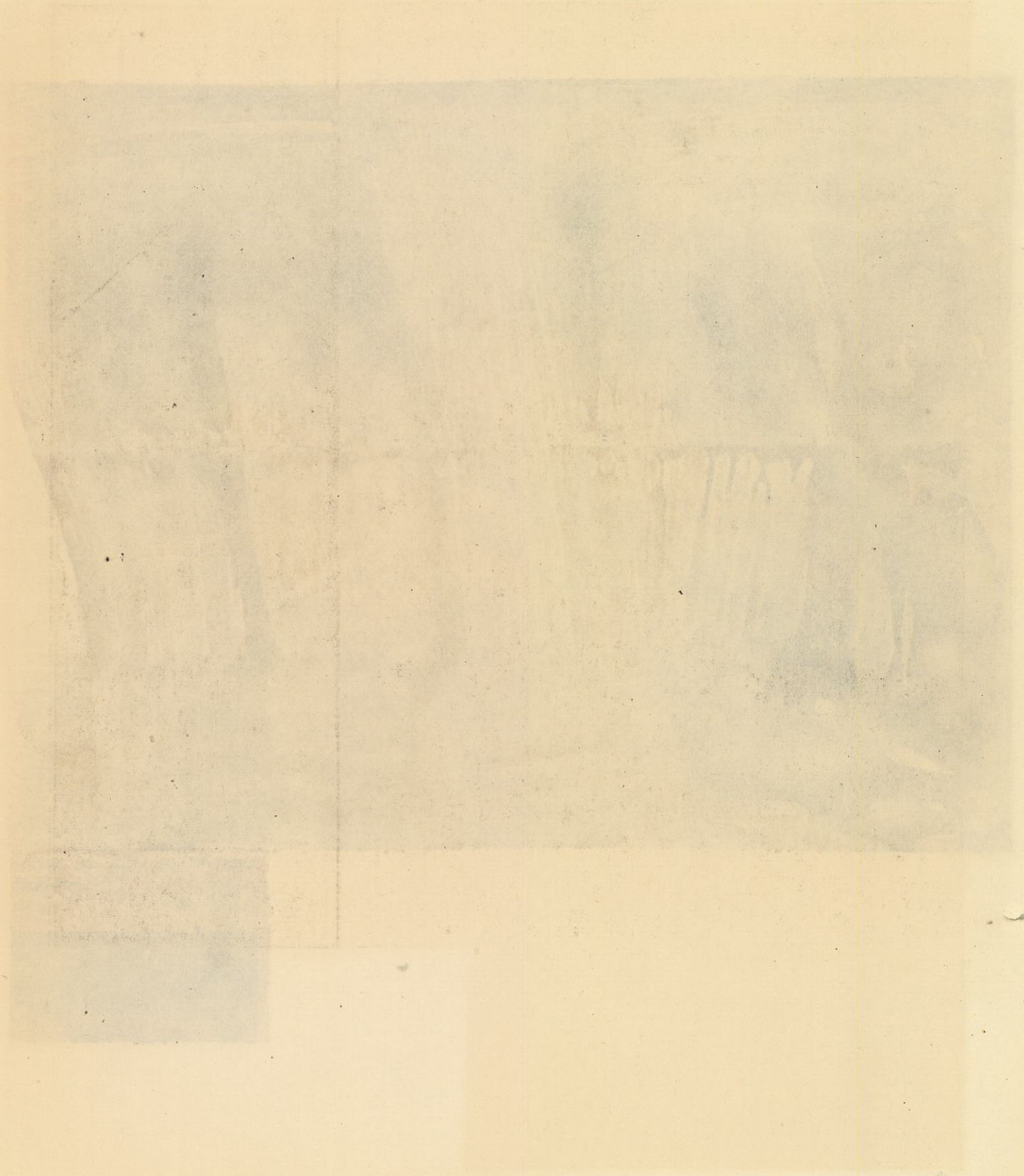


MAIN BREAK—This view, looking north into Yuba City, shows the main break in the levee which gave way to the rampaging Feather River one mile south of Yuba City. A weak spot developed there near the city's sewage plant.



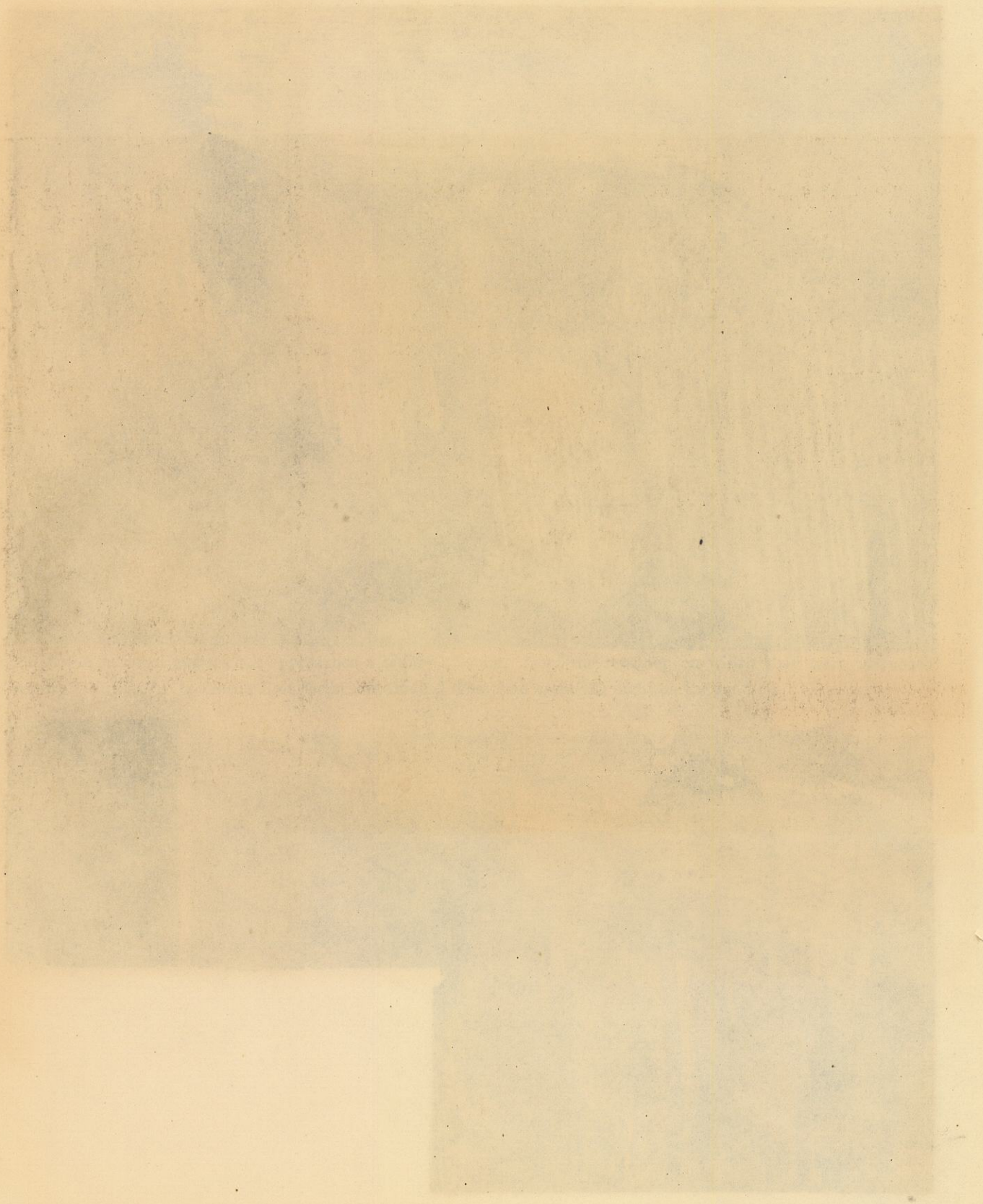


In the photo at the left is seen the 10th Street Bridge linking Marysville and Yuba City, the broken 5th Street Bridge, arrow, and levee break, arrow, which let water into Yuba City. Marysville was left virtually an island city.



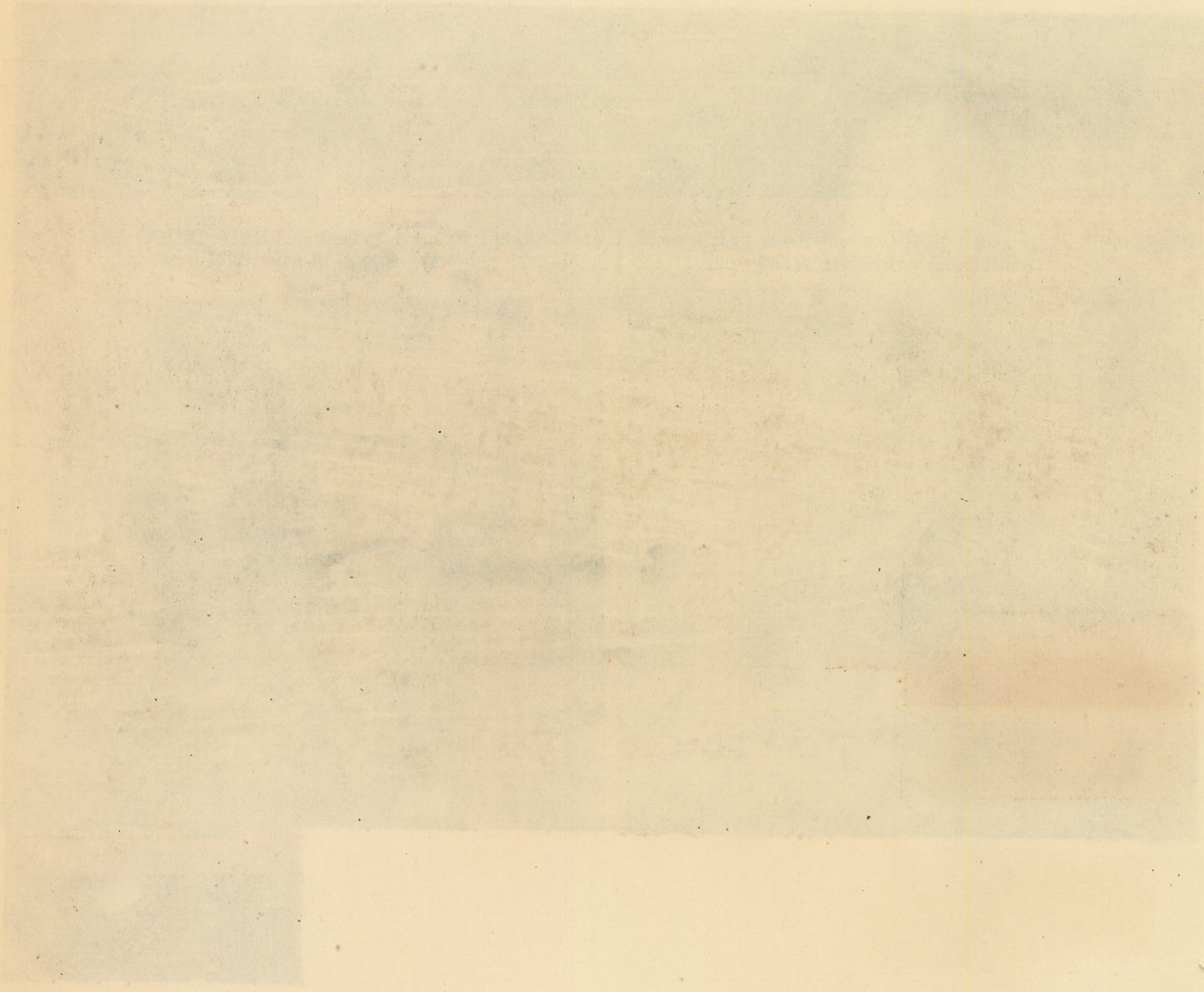


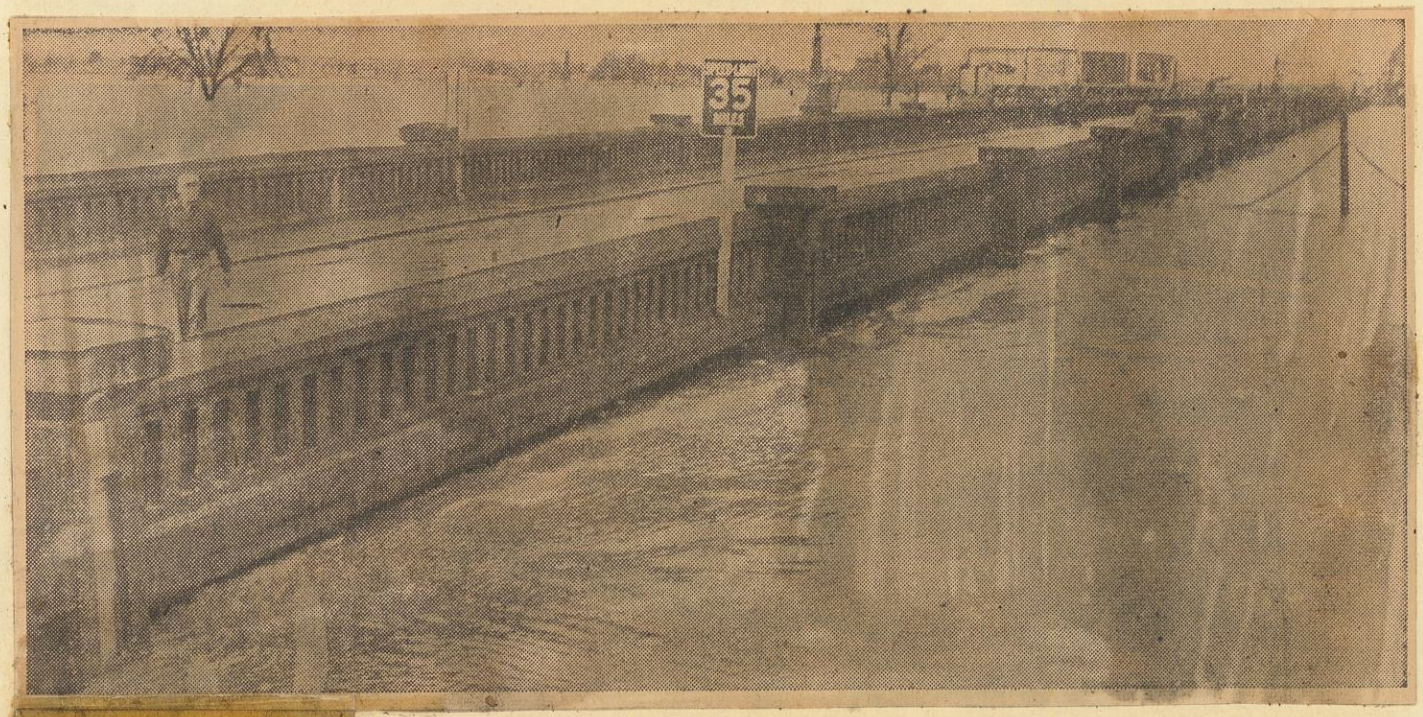
AFTERMATH—A house was tilted at a crazy angle on top of railroad tracks and another was buckled against the rail embankment as the flood waters receded in Yuba City. The wreckage as seen in the picture is indicative of the havoc left by last weekend's inundation of a large section of Sutter County.





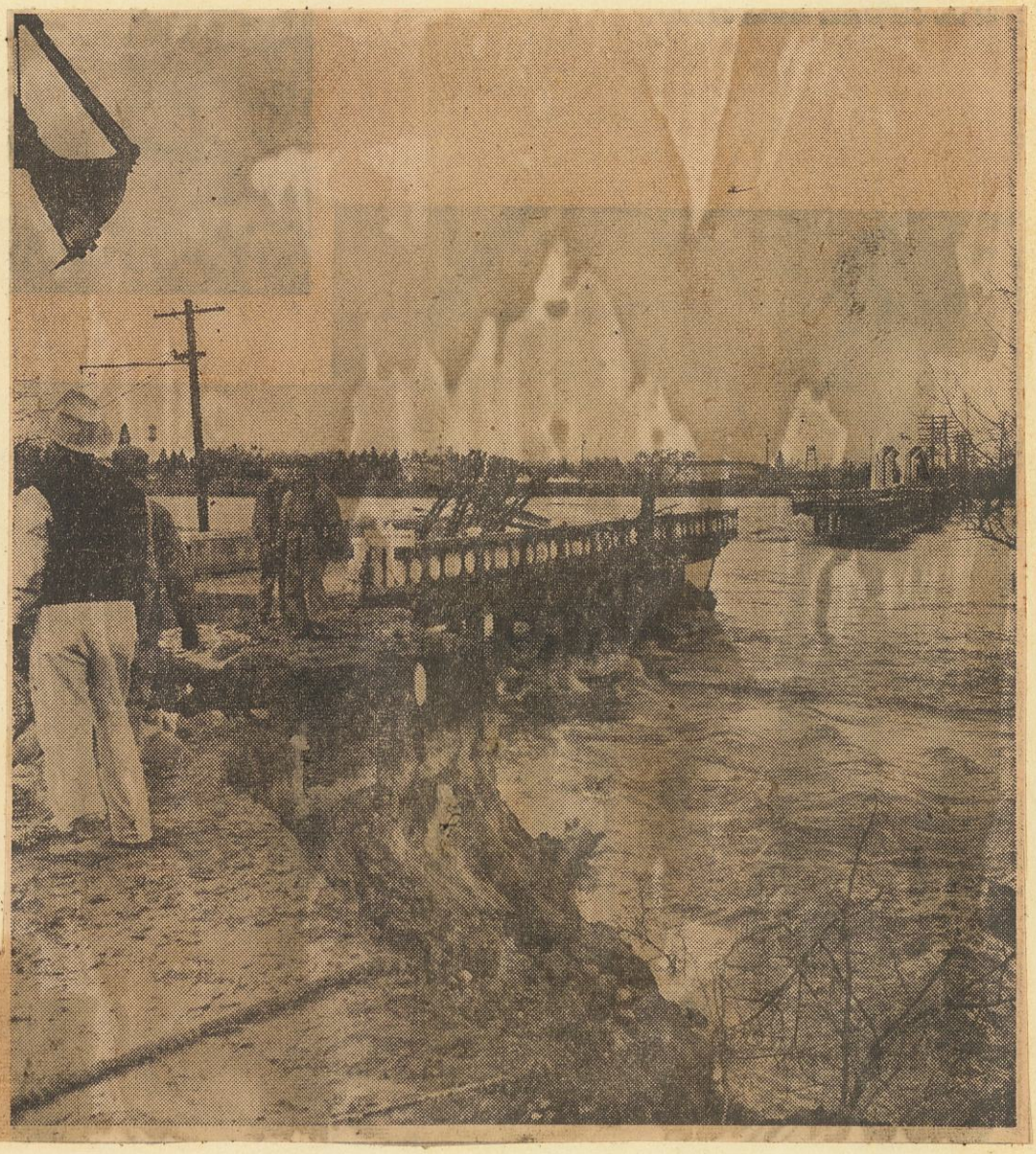
Crews worked throughout the night, left, to sandbag levees and the railroad embankment against the Feather and Yuba Rivers.



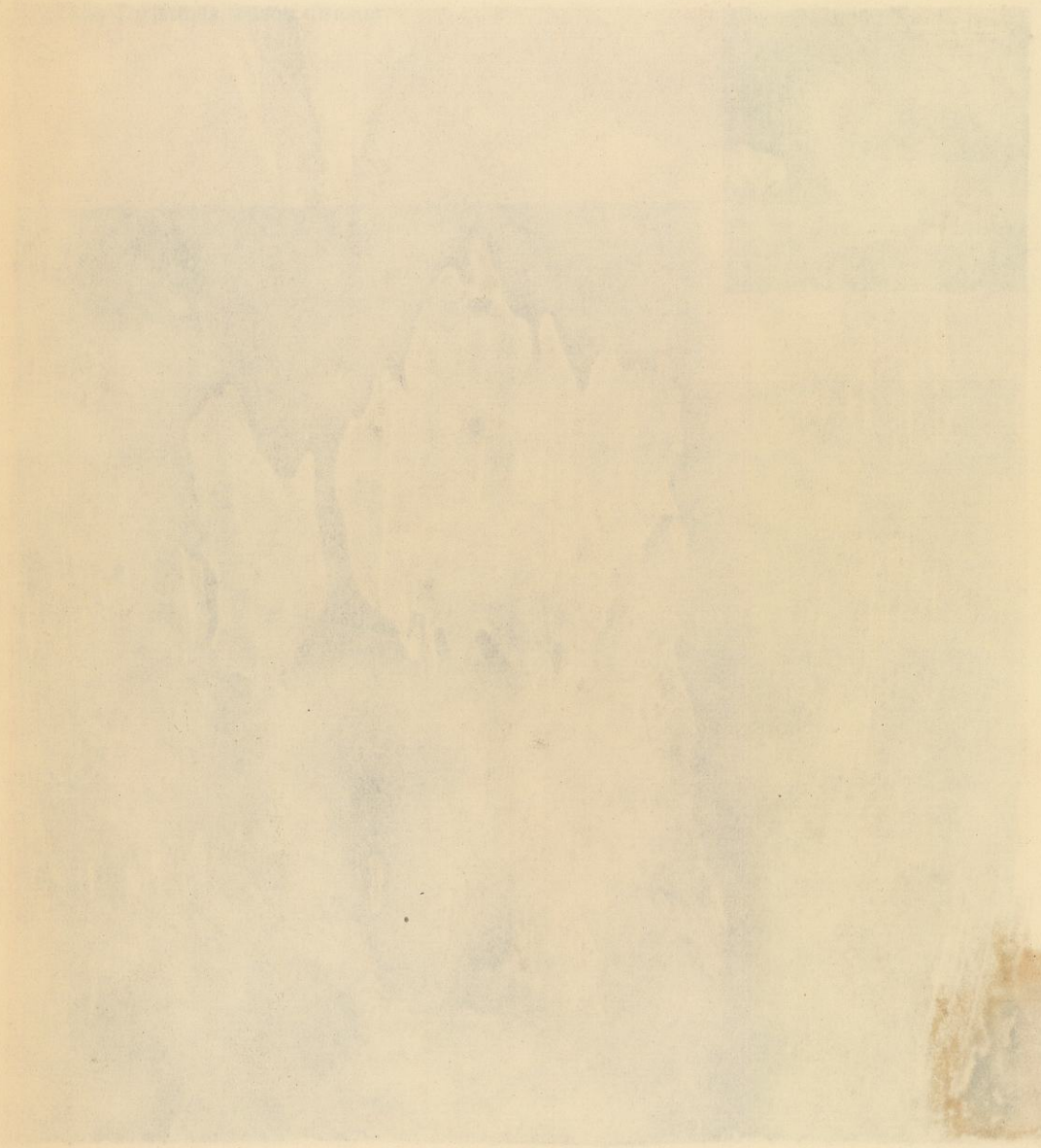


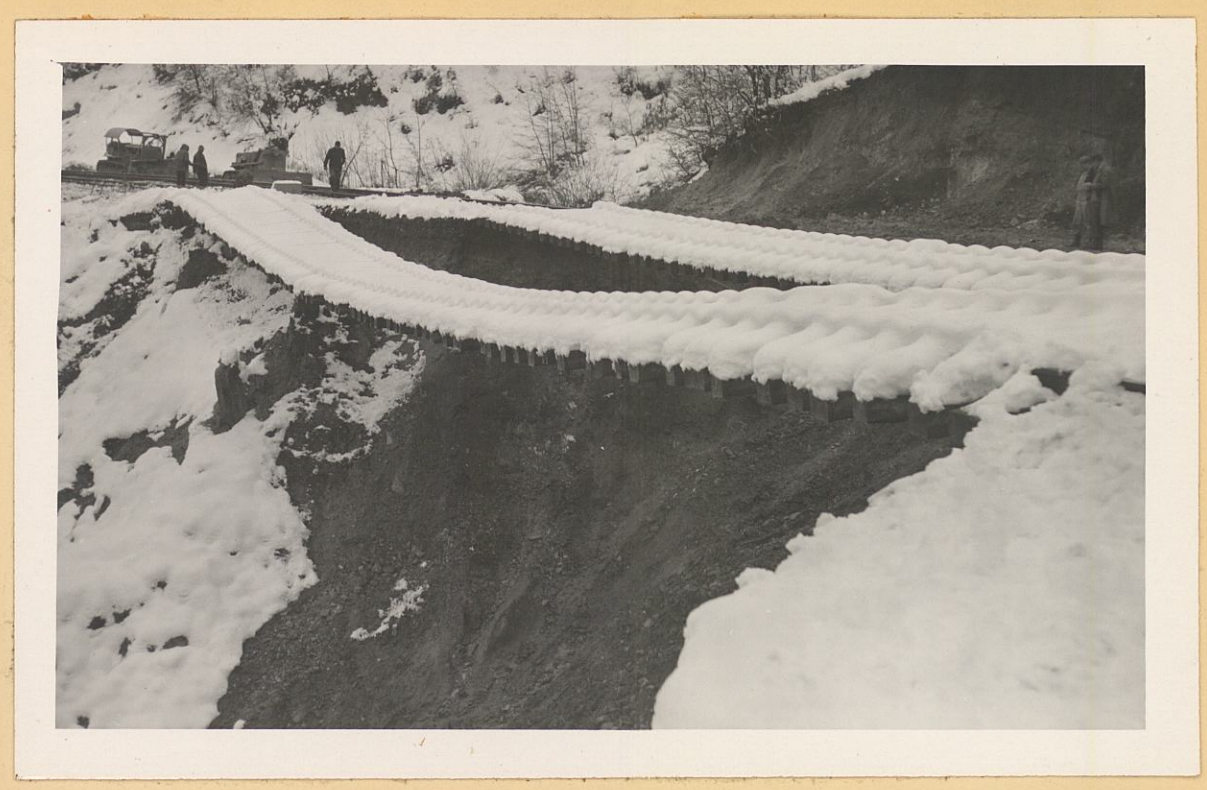
A pedestrian, right above, peers anxiously at the rising Yuba River while crossing the D Street Bridge at Marysville.





HAVOC—At the right the water of the Feather River washed away at the approach of the 5th Street Bridge on the Marysville side after having swept away a portion of the bridge.





Forebay - East end Curve 228, MP-163.7. View of wash-out showing depth of hole and east and westward tracks suspended in midair.



Forebay - East end Curve 228, MP-163.7. View of wash-out showing depth of hole and east and westward tracks suspended in midair.



Forebay - East end Curve 228, MP-163.7. View of washout area showing hillside excavated by bull-dozers after washout occurred.



Forebay - East end Curve 228, MP-163.7. View looking from center of westward track down slope of wash-out showing eastward track in midair.



Forebay - East end Curve 228, MP-163.7. View looking from center of westward track down slope of washout, showing eastward track in midair.



Forebay - East end Curve 228, MP-163.7. View of depth of hole created by washout, with tracks suspended in midair.



Forebay - East end Curve 228, MP-163.7. Looking west from point east of washout, showing new temporary trestle constructed on westward track and eastward track suspended in the air.



Forebay - East end Curve 228, MP-163.7. Looking west from point east of washout, showing new temporary trestle constructed on westward track and eastward track suspended in the air.



Forebay - East end Curve 228, MP-163.7. View showing temporary trestle on westward track with eastward track cut off and rail and ties at bottom of washout.



Forebay - East end Curve 228, MP-163.7. View showing temporary trestle on westward track with eastward track cut off and rail and ties at bottom of washout.



West of Bogue - Looking west from point 500' east of crossing CY-149.3 showing track off grade and lodged against trees in orchard.



Looking east, West of Bogue - from point 500' east of crossing CY-149.3 showing track off grade.



East of Oswald - Looking east from MP-152.8 showing debris left on track.



East of Oswald - Looking west from MP-153.5 showing debris left on track.



Bogue - Looking west from point 1000' west of crossing CY-151.1 showing debris.



Bogue - Looking east at MP-151.1 showing track off grade.



Yuba City - West end Structure #148.47 showing houses lodged against trestle.



Yuba City - West end Structure #148.47 showing houses lodged against trestle.



West of Bogue - Looking east from point 1500' east of crossing CY-149.3 showing track washed off grade.



West of Bogue - Looking west from point 1500' east of Crossing CY-149.3, showing track off grade and abandoned autos on track.



East of Oswald at MP-154 showing track washed off grade.



East of Oswald at MP-154.55 showing track washed off grade.



Bogue - Looking east from east switch at Bogue showing track washed off grade.



Bogue - Looking east from point 800' east of switch at Bogue. Showing track off grade and silt deposit.



East of Yuba City - Looking west from a point 500' east of Crossing CY-148.8 showing track off grade.



East of Yuba City - Looking west from Crossing CY-148.8.



Yuba City - Structure #147.46 showing washout at bulkhead



Yuba City - Structure #147.46 showing washout at bulkhead and debris.



Yuba City - Structure 147.46 showing washout at bulkhead.



Yuba City - Looking west from crossing CY-149.3 showing house on track and washouts.



Looking east - Yuba City - from crossing CY-149.3 showing debris and overturned houses.



Yuba City - Looking west from MP-148.69 showing track off grade.



Yuba City - Looking west from MP-149 showing track off grade.



Yuba City - Looking west from point 50' east of crossing CY-148.3 showing building on track.



Yuba City - Looking west from MP-148.69 showing track off grade.



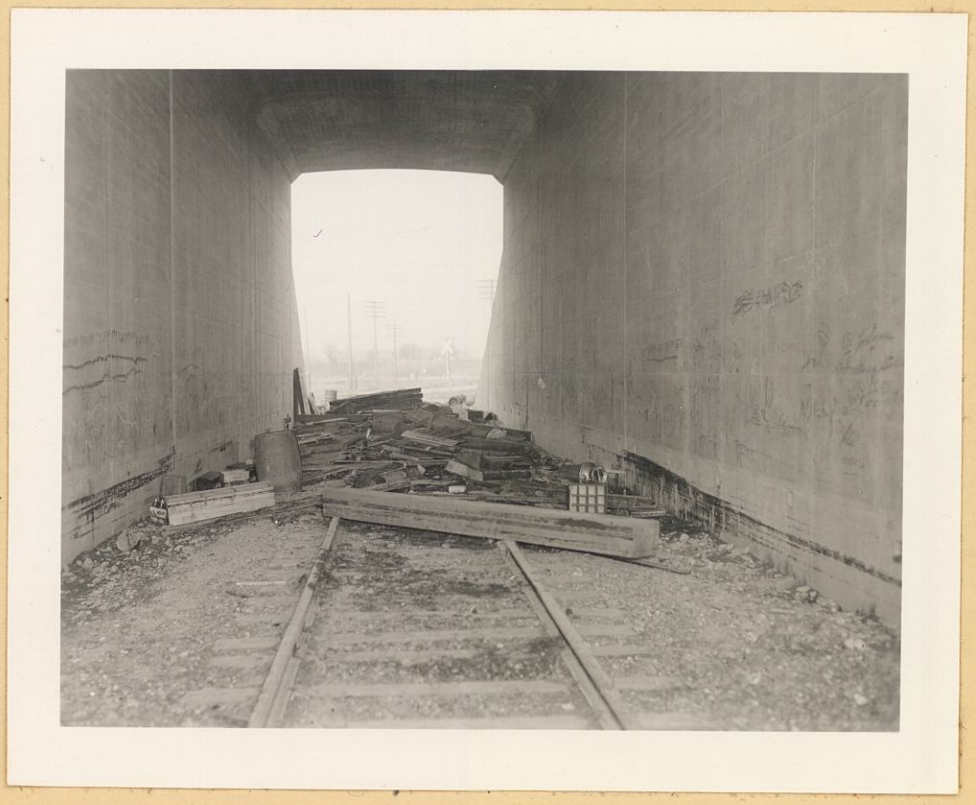
Yuba City - Looking east from crossing CY-146.87A showing debris West levee Feather River on left.



Yuba City - Looking west from MP-146.55 showing ballast washed away. Feather River levee on right.



Yuba City - Looking west from point 350' east crossing 147.2, showing ballast wash. Sutter Street in background.



Yuba City - Showing debris in underpass of State Highway overhead, crossing 147.87-A.

387-822